

**-The Art of Interpreting Lumbopelvic Radiographs
--with--
Diagnostic Imaging Review of Chronically Painful Lumbopelvic Joints
in Adults**

**January 13-14, 2024 Louisville, KY/Southern IN
Saturday 8am to 5pm and Sunday 8am to 12pm**

12 TOTAL CE HOURS (INCLUDES 4 HOURS* RISK MANAGEMENT)

***Given first (4) hours on January 20, 2024**

Dr. Brooke L. Gajeski, D.C, D.A.C.B.R.

12 Hours Total CE- Topics- Includes (4) Hours Risk Management

- The Art of Interpreting Lumbopelvic Radiographs- (4 Hours)
- Diagnostic Imaging Review of Chronically Painful Lumbopelvic Joints in Adults- (6 Hours)
- Challenge of the Unknowns Case Quizzes- (2 Hours)

The Art of Interpreting Lumbopelvic Radiographs (4 Hours)

The seminar will commence with a basic review of indications for radiographic examination of the lumbopelvis in the adult population, including the low back, pelvis and hip regions. The necessity of radiographic examination of the lumbopelvis in the chiropractic profession will be compared to the medical model. Basic radiographic positioning technique of the lumbopelvic region will be discussed as it pertains to common positioning/technique errors and correction. Attendees will also learn pitfalls in lumbopelvic x-ray technique as they pertain to pseudo pathology involving the lower lumbar spine, pelvis and hip regions.

The science behind how we look at and interpret lumbopelvic radiographs will be presented along with the importance of chiropractors developing reproducible radiographic search patterns for each x-ray region they interpret. Attendees will learn how to look at and review an x-ray as a radiologist does, in an effort to avoid malpractice issues associated with the missed radiographic diagnosis.

Dr. Gajeski will present examples of search patterns in the lumbar, pelvic, and hip regions that may be utilized when interpreting lumbopelvic x-rays, as well as list of the anatomical structures that must be reviewed upon radiographic interpretation of each lumbopelvic region. Region specific mensuration tools will be presented as an important component of search patterns in radiographic interpretation.

Diagnostic Imaging Review of Chronically Painful Lumbopelvic Joints in Adults- (6 Hours)

The seminar will continue with a radiographic review of commonly encountered joint-centered lumbopelvic disorders on chiropractic x-rays in adults, including disorders of the lower lumbar spine, sacroiliac joints, hip joints and symphysis pubis. Common joint disorders from the differential diagnosis categories of *normal variants, congenital, traumatic, arthritic, neoplastic, infectious, hematologic, and metabolic* joint centered disorders in these lumbopelvic regions will be comprehensively reviewed.

For each disorder presented, the general considerations, clinical features, radiologic/diagnostic imaging findings and patient management considerations will be presented. If available for presentation, new information, developments and/or treatment options for these disease entities will also be reviewed.

A special bonus section will include a brief overview of MRI of the lumbar spine, including a review of anatomy and interpretation basics, as well as a discussion on how to interpret degenerative disease and disc disease on lumbar MRI.

Attendees will gain confidence in their understanding of these core radiology topics and use what they have learned back in the office on Monday morning! Interactive quizzes/group discussions will be utilized during the lecture to engage the learner throughout the day. All slides presented will consist of high-quality PowerPoint slides with clear diagnostic imaging studies utilized for maximum learning potential.

Challenge of the Unknowns Case Quizzes- (2 Hours)

The seminar concludes with a radiographic slideshow open forum quiz session consisting of 20-30 actual short cases encountered in the chiropractic office. Radiographs will be presented as unknowns along with a multiple-choice format quiz and group discussion for each case. Each case will feature a brief review of clinical considerations and management options for each disease entity presented. Slides presented will consist of quality anatomical and diagnostic imaging PowerPoint slides for maximum learning potential.

HOUR BY HOUR OUTLINE

The Art of Interpreting Lumbopelvic Radiographs- (4 Hours)

Hours 1-2

- **Introduction and Low Back Pain/Pelvic Pain**
 - Statistics
 - Listing of Low Back Pain and Pelvic pain sources commonly seen in chiropractic
- **Indications for Diagnostic Imaging**
 - Choosing Wisely campaign vs.
 - Necessity in Chiropractic practice
 - Red Flags
 - Lumbar, Pelvic, Hip, Coccyx indications for plain film imaging
 - ACR guidelines and how they can help you in decision making
 - Spinal Radiography
 - Pelvic Radiography
 - Advanced Imaging
- **Basic radiographic positioning review**
 - **Lumbar spine**
 - Review of basic positioning and series
 - Typical errors and corrections
 - Common pitfalls/pseudopathology

- **Pelvis**
 - Review of basic positioning and series
 - Typical errors and corrections
 - Common pitfalls/pseudopathology
- **Hip**
 - Review of basic positioning and series
 - Typical errors and corrections
 - Common pitfalls/pseudopathology
- **Coccyx**
 - Review of basic positioning and series
 - Typical errors
 - Common pitfalls/pseudopathology
- **Special Projections**
 - Ferguson's Tilt Up view of the lumbosacral junction
 - Technique and utilization of
 - Examples

Hours 3-4

- **Search Patterns in Radiology**
 - Definition and importance
 - Science behind how we look at x-rays
 - Techniques of
 - Satisfaction of the search
 - Definition and examples of
 - Where's Waldo pictures
 - Pictures to show how this works-"what's wrong" exercises in kids magazines, "what doesn't belong"
 - **Search Patterns of the Lower Lumbar Spine and Pelvis/Hips**
 - Must look at structures of each below:
 - Lower lumbar spine
 - Pelvis
 - Hip
- **Special Regional Helpful Mensuration**
 - **Lower Lumbar Spine**
 - Static Regional Malposition
 - Lumbar instability measurement
 - **Pelvis**
 - Symphysis pubis width
 - Acetabular angle
 - **Hip**
 - Tear drop distance
 - Acetabular depth
 - Center edge angle
 - Kohler's line
 - Shenton's line
 -

Diagnostic Imaging Review of Chronically Painful Lumbopelvic Joints in Adults- (6 Hours)

Hour 5 to 5/6

- **Lumbar Magnetic Resonance Imaging Utilization and Interpretation for the Chiropractor****
 - **Utilization and indications for**
 - **Review of tissue appearances on MRI relating to mobile H+ atoms**
 - Bone marrow
 - Cortical bone
 - Soft tissue
 - Fat
 - Air filled structures
 - **Imaging Techniques**
 - **Multiplanar imaging planes**
 - Sagittal, coronal, Axial, Oblique planes
 - Determined by body part imaged
 - The Scout Image
 - Purpose
 - **Slice Thickness**
 - **Common Pulse Sequences in Spine Imaging-examples**
 - T1, T2
 - Inversion recovery
 - Fat-suppression
 - **MRI Lumbar Quick Anatomy Review**
 - **Normal MRI anatomy instruction with gross anatomy correlation**
 - **Review of major anatomical structures of the lumbar spine on MRI w gross anatomy correlation**
 - Bony anatomy
 - Disc anatomy
 - Nucleus and annulus
 - Nerve root anatomy and locations
 - Exiting and Traversing nerve roots
 - Epidural spaces
 - Spinal cord
 - Dural compartments
 - Vascular supply
 - Lumbar soft tissues and pelvis
 - **MRI Anatomy Practice Test- if time permits**
 - Quiz on MRI anatomy learned!!!!
 - **Search patterns in MRI interpretation**
 - Structures to be sure to review on each MRI exam
 - Normal appearances of structures

- **Common MRI pathology of the lumbar spine**
 - **Degenerative disease of the spine- appearance and significance and diagnosis**
 - **Disc lesions- types and nomenclature**
 - Bulge, Herniations, sequestrum
 - The Hard Disk
 - Modic Changes and their significance
 - Annular Fissure
 - **Facet joint arthrosis**
 - **Sciatica/radiculopathy and the MRI exam**
 - **Spondylolysis and Spondylolisthesis**
 - Clinical
 - Pathology
 - Imaging appearance
 - Chiropractic MRI applications
 - **Stenosis**
 - Grading stenosis
 - Causes of stenosis
 - Clinical presentations

Hours 6-10

- **FOR EACH OF THE COMMON DISORDERS IN EACH ANATOMICAL REGION, THE FOLLOWING WILL BE PRESENTED ***
 - Regional disorders selected on commonality according to the mnemonic if applicable
 - CATBITES
 - Congenital, arthritide, tumor, blood, infection, trauma, endocrine, soft tissue
 - Lumbar spine, pelvis, hip
 - Definition and General Info
 - Clinical presentation
 - Diagnostic work up including radiographic examination
 - Diagnostic imaging findings
 - Patient management considerations including specific considerations for chiropractic
 - Prognosis
 - Latest data, research, new developments if available

Hours 6, 7, 8

- **Lower Lumbar Spine Imaging- Common Disorders ***
 - C- lumbosacral transitional segments
 - A-Degenerative disease and disc lesions (Special MRI review section above given first)**,
inflammatory arthritis, DISH, degenerative spondylolisthesis, synovial cysts, tarlov cysts
(lumbosacral)
 - T-spondylolysis and spondylolisthesis, compression/insufficiency fracture, iliolumbar ligament
syndrome,
-Use of prop here (Styrofoam versus brick)
 - B-hematologic malignancy(same as T below)
 - I-failed back surgery

- T-metastasis, myeloma, hemangioma(typical vs atypical),
- E-osteoporosis(primary and secondary)
- S-x (no soft tissue findings/entity reviewed)

Hour 9

- **Sacroiliac Joint Imaging- Common Disorders***
 - **SI joint pain discussion**
 - Differential diagnosis of SI joint pain
 - Work up
 - C-x
 - A-Degenerative disease, inflammatory sacroillitis
 - T-sprain and fracture, osteitis condensans illi
 - B-x
 - I-x
 - T-tumors-mc pelvic tumors-not common
 - Metastasis
 - Bone Island
 - Pagets Disease
 - E-Chronic Renal Disease
 - S-x
- **Symphysis Pubis Imaging- Common Disorders***
 - **Symphysis pain discussion**
 - Differential diagnosis of
 - Work up
 - C-x
 - A-inflammatory arthritis, degenerative disease, osteitis, DISH
 - T-Partuition induced instability
 - B-x
 - I-x
 - T-x
 - E-x
 - S-x
- **Sacrococcygeal Imaging- Common Disorders***
 - Sacrococcygeal pain discussion and work up
 - Coccydynia discussion
 - C-variants in development and position
 - A-Degenerative disease
 - T-trauma and instability
 - B-x
 - I-x
 - T-x
 - E-x
 - S-x

Hour 10

- **Hip Joint Imaging- Common Disorders***
 - **Chronic Hip pain discussion**
 - Differential diagnosis of
 - Work up
 - C-Femoroacetabular Impingement of the hip, Dysplasia
 - A-Degenerative disease, FAI hip, Inflammatory arthritis
 - T-Insufficiency fracture femur, OP insufficiency/stress fractures of pelvis, labral tears
 - B-AVN
 - I-Iatrogenic/Post op hip/arthroplasty, tendinitis, bursitis, enthesopathy
 - T-common tumors of hip/femur/pelvis
 - Bone Island/giant bone island
 - Metastasis- although not common in appendicular skeleton
 - Myeloma
 - Simple bone cyst, geode, herniation pit
 - Pagets
 - S-Joint Effusion
 - Causes
 - Synovitis
 - Infections
 - Internal derangement
 - AVN

Challenge of the Unknowns Case Quizzes- (2 Hours)

Hours 11 and 12

- **Challenge of the Unknowns**
 - **Radiology Quiz Slideshow Q/A Session- 20-30 Cases**
 - Review of radiographs with multiple choice answer format
 - Review of clinical considerations regarding each diagnostic entity on radiographs
 - Review of anatomical considerations and applicable advanced imaging for each case presented.

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